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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,452	07/30/2003	Bradford A. Ritter	100110416-1	9261

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EXAMINER
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CHEN, WENPENG

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/630,452	Applicant(s) RITTER ET AL	
	Examiner Wenpeng Chen	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2007.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-16 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**Examiner's responses to Applicant's remark**

1. Applicants' amendments filed on 1/5/2007 have been fully considered. The amendments overcome the followings set forth in paper #20061006, mailed on 10/16/2006:

-- rejection to Claim 5 under 35 U.S.C. 101 (paragraph 1);

-- rejections to Claims 1, 2, 5, 6, 7, 8, 11, and 12 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, 9, 1, 11, 15, 11, and 15 of U. S. Patent No. 7,030,884, respectively, in view of Watanabe (US patent 6,384,834) (paragraph 4).

2. Applicant's arguments, filed on 1/5/2007, with respect to the rejection(s) of the pending claim(s) have been fully considered. The arguments are directed to the newly amended rejections, they are moot because of a new ground (specific directed to the newly changed limitations)-rejection due to the amendments.

***Claim Rejections - 35 USC § 103***

3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (US patent 6,384,834) in view of Malzbender et al ("Polynomial texture maps", Malzbender, Tom, et al., Proceedings of the 28<sup>th</sup> annual conference on Computer graphics and interactive techniques, August 2001).

a. Watanabe teaches a texture mapping system, comprising:

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-- for Claim 1, memory for storing a parametric texture map, the parametric texture map having a plurality of texels defining a first texture; (Fig. 1; column 7, line 66 to column 8, line 43; storage 242 of Fig. 12; *column 12, lines 7-39; Storage 242 stores vertex texture coordinates, such as (VTX0, VTY0), of vertices of a polygon. The vertex texture coordinates are parameters used for a texture coordinate (VTX, VTY) to texture map dots on the polygon. The texture information specified with the vertex texture coordinates forms a parametric texture map.*)

-- for Claim 1, a texture map manager configured to perform a rotation of the first texture thereby providing a parametric texture map defining a second texture that is rotated relative to the first texture, the texture map manager further configured to adjust at least one of the texels to compensate for the rotation. (Fig. 1; column 1, lines 13-61; column 7, line 66 to column 8, line 43; Figs. 13-15 and 17; *Fig. 14 shows a how the vertex texture coordinates and texture coordinate are transformed under rotation from a first texture map specified by the vertex texture coordinates associated with the original vertices to those associated with the rotated vertices to form a second texture. The transformation also compensates the effect of rotation on the texture map. The applicants alleged that the rotation is for a whole car not for a texture. The Examiner disagrees. Fig. 17 clearly shows that the texture is applied to a tire modeled as a combination of polygons and having running surface 33 and side surface 32. Each of the surfaces is specified by a texture at any rotation angle. The generation and application of texture map is most relevant to the recited claimed feature, because its texture is generated with the method described in Fig. 14.*)

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However, Watanabe does not teach the recited feature related to “light direction” and especially “a variable expression that defines a luminosity parameter as a function of light direction”.

Malzbender teaches a texture mapping approach, comprising:

-- for Claim 1, a parametric texture map, the parametric texture map having a plurality of texels, each of the texels defining a variable expression that defines a luminosity parameter as a function of light direction. (section 3.2)

It is desirable to improve realism of 3D image rendering. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to use Malzbender's polynomial texture maps to specify direction-dependent lighting effect on texture information associated with dots in each polygons to render Watanabe's image (at least the running surface 33 of Fig. 17) at the perspective viewing angles of surfaces of an object during rotation, because the combination improves realism of 3D image rendering of rotated image. The combination thus teaches:

-- memory for storing a parametric texture map, the parametric texture map having a plurality of texels defining a first texture, at least one of the texels defining a variable expression that defines a luminosity parameter as a function of light direction;

-- a texture map manager configured to perform a rotation of the first texture thereby providing a parametric texture map defining a second texture that is rotated relative to the first texture, the texture map manager further configured to define a variable expression for a texel of the parametric texture map defining the second texture by adjusting the variable expression of the one texel to compensate for a change in relative light direction resulting from the rotation.

Malzbender further teaches:

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-- for Claim 2, wherein the variable expression of the one texel defines a luminosity behavior for the one texel; (section 3.2)

-- for Claim 3, wherein the variable expression of the one texel is defined according to the equation defined in Claim 3. (equation 5)

b. Claim 5 is a "computer-readable medium" claim corresponding to Claim 1. Watanabe teaches that the method can be implemented by software means using a general-purpose processor (column 14, lines 46-51). Because the software has to reside in a storage medium in the processor for the disclosed processing, the combination of Watanabe and Malzbender as discussed above also teaches Claim 5.

c. Evidently, the above discussion also shows that the combination of Watanabe and Malzbender also teaches the texture mapping system recited in Claim 6, the texture mapping methods recited in Claims 7-9 and 11-13.

d. For Claims 15 and 16, Watanabe further teaches:

-- applying the rotated texture to a graphical object; (column 11, line 47 to column 12, line 39; column 13, lines 30-44; Texture map is applied to each polygon, including a rotated running surface.)

-- displaying the graphical object. (column 11, lines 12-25; column 1, lines 13-62; Figs. 13, 20; element 10 of Fig. 12)

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Therefore, the combination of Watanabe and Malzbender also teaches applying the rotated texture based on the variable expression for the texel defining the portion of the second texture.

e. With regard to Claims 4, 10, and 14, the recited expression is an obvious result of transformation from a vector to another due to rotation. When an object, such as the running surface of a tire, is rotated, the light vector with respect to the texture surface coordinates changes accordingly. The transformation represented in paragraphs [0101]-[0109] of the present application is just the change of parameters because the change of the direction of a light vector. So when one applies Watanabe's teaching to rotate Malzbender's polynomial texture map, one inherently will reach the same expression recited in Claims 4, 10, and 14. Therefore, combination of Watanabe and Malzbender as discussed above also teaches Claims 4, 10, and 14.

### Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is 571-272-7431. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Wenpeng Chen  
Primary Examiner  
Art Unit 2624

March 16, 2007

